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WOMEN IN MEDICINE: IMPACTS ON SPECIALTIES AND SETTINGS OF PRACTICE IN NORTH CAROLINA

UNIVERSITY OF NORTH CAROLINA

SOCIAL RESEARCH SECTION
DIVISION OF HEALTH AFFAIRS
THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

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University of North Carolina at Chapel Hill
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In the United States, the proportion of women physicians has historically been small. In 1967, only seven percent of the physicians were women.[1] A survey undertaken by the Department of Health, Education and Welfare in 1962 cited the following obstacles to becoming physicians which were encountered by women: job is too demanding to combine with family responsibilities; the likelihood of part time employment is doubtful; parents actively discourage daughters; men in the field resent women colleagues; restricts chances for marriage.[2]

In spite of the above reasons the percent of women who applied to and were accepted by medical schools slowly increased from four percent in 1914 to nine percent in 1969. However, more recently, accompanying the emphasis on equal opportunities for women and minority groups, and an increase in women's desires to pursue careers, the proportion of women attending medical schools has increased dramatically. In 1972, 16.8 percent of all entering medical students in the United States were women.[3] The figures presented in Table 1 show a substantial increase in both the number and proportion of women attending one medical school, the School of Medicine at the University of North Carolina at Chapel Hill, for the years 1971 through 1974. These figures represent a situation that is probably typical of other medical schools.

The settings of medical practice[4] and the primary specialties of physicians greatly influence the medical care that is available to the people living in a particular area. If female and male physicians tend to have different types of medical careers, the changes in proportions of women and men who are being trained as physicians may have important implications not only for the structure of the medical profession, but also for the availability of medical care. This study is a comparison of the types of medical careers of female

Table 1: Number of Male and Female Medical Students at the School of Medicine, University of North Carolina at Chapel Hill for the Years 1971 through 1974, by Class.*

	Number		Percent
	Males	Females	Female
Fall 1974			
1st year, ECU*	17	3	15
1st year	85	26	23
2nd year	106	25	19
3rd year	98	28	22
4th year	95	11	10
Fall 1973			
1st year, ECU*	18	2	10
1st year	88	23	21
2nd year	101	30	23
3rd year	97	11	10
4th year	88	12	12
Fall 1972			
1st year, ECU*	20	0	0
1st year	84	28	25
2nd year	98	10	9
3rd year	91	10	11
4th year	80	6	7
Fall 1971			
1st year	98	13	12
2nd year	88	11	11
3rd year	77	7	8
4th year	67	3	4

*Since 1972 East Carolina University has had a first year class of medical students. They transferred to the Chapel Hill campus for the remainder of their medical training. This procedure is no longer in effect.

Source: Registrar, UNC School of Medicine, Chapel Hill.

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and male physicians in North Carolina in 1973.[4]

The main question addressed in this research is whether female physicians have different medical careers, in terms of primary specialty and the setting of practice, from male physicians. In addition, the differences in career patterns between the younger female and male physicians and their older counterparts will be explored.

The age of a physician indicates the period at which practice was begun. The choice of a medical specialty is assumed to remain constant over a physician's lifetime. Therefore, age is important not as an indicator of what a physicians at a particular time in the life cycle does, but what particular cohorts of physicians have done. Age will be used as an indicator of trends and changes in specialty patterns and can be used to make projections or speculations of how the medical profession may look at a future time. The choice of a practice setting, however, may not be as stable. Differences between younger and older physicians may reflect past and future trends in practice settings; yet they may simply reflect stages in career patterns.

Age Distributions of Female and Male Physicians

The age distributions of female and male physicians are very similar.[5] (See Table 2) However, one should note that the youngest category of female physicians includes 17.1 percent of the women, while the youngest category of male physicians includes 11.5 percent of the men. If the medical schools continue to educate greater numbers of female physicians, while decreasing the number of males,[6] we can expect the number of female physicians in North Carolina to increase and the proportion of female physicians in the younger age groups to increase further.

Table 2: Age of Non-Federal Physicians in North Carolina, 1973, by Sex, In Percentages

Age	Female		Male	
	Number	Percent	Number	Percent
Under 30	64	17.1	686	11.5
30 - 34	48	12.8	779	13.0
35 - 44	79	21.1	1550	25.9
45 - 54	75	20.0	1414	23.6
55 - 64	69	18.4	839	14.0
65+	40	10.7	720	12.0
Total	375	100.0	5988	100.0

The percent of female physicians in each age category is presented in Table 3. The youngest age category, under 30, has the highest percent of women. This is a result of the recent increase in women attending medical school.

Medical Specialties

The most common medical specialties are: general practice, internal medicine, obstetrics and gynecology, psychiatry, pediatrics and surgery. Sixty-five percent of the women and 72.5 percent of the men specialize in these areas of medicine. Pediatric specialties are pursued by approximately one quarter of the female physicians. No other specialty is as frequent among female physicians. The most frequent male specialties are surgery and general practice, followed closely by internal medicine. The surgical specialties are dominated by men. Almost one-fifth of the men (19.4 percent) list a surgical field as their primary specialty, while only 2.1 percent of the female physicians do likewise. (See Table 4 and Figure 1.)

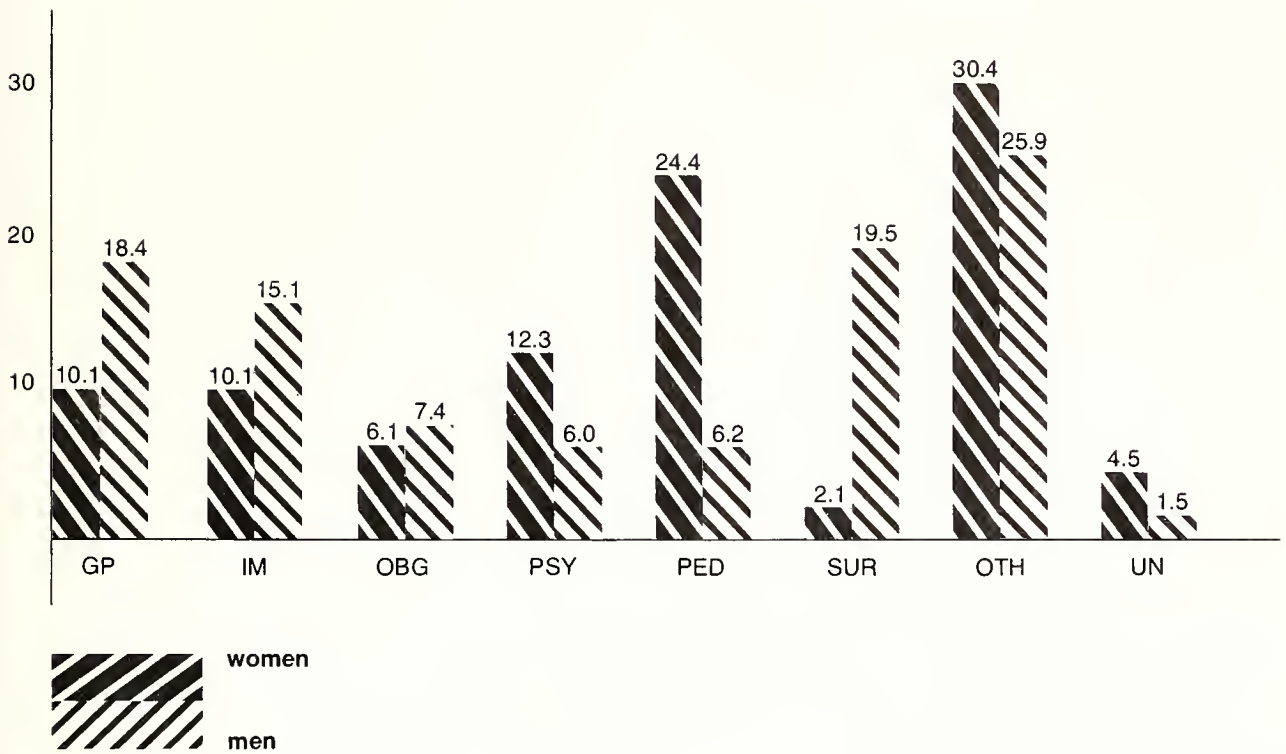
Table 3: Percent of Non-Federal Physicians Who Are Women in North Carolina, 1973, By Age.

	Percent Female	Total Number
Under 30	9.3	750
30 - 34	6.1	827
35 - 44	5.1	1629
45 - 54	5.3	1489
55 - 64	8.2	908
65+	5.5	760
Total	6.2	6363

Table 4 : Primary Specialty of Non-Federal Physicians in North Carolina, 1973,By Sex, In Percentages.

	Male	Female
allergy	0.3	0.5
aerospace	0.1	0.0
anesthesiology	1.8	5.1
cardiology	1.8	0.5
child psychiatry	0.6	2.7
colon-rectal surgery	0.2	0.0
dermatology	1.3	1.1
diagnostic radiology	0.8	0.3
forensic pathology	0.0	0.0
gastroenterology	0.5	0.3
general practice	18.4	10.1
general preventive medicine	0.2	1.3
general surgery	11.1	1.3
internal medicine	15.1	10.1
neurology	1.1	0.8
neurosurgery	0.9	0.0
obstetrics and gynecology	7.4	6.1
occupational medicine	0.8	0.3
ophthalmology	3.4	0.5
orthopedic surgery	3.5	0.5
otolaryngology	1.8	0.5
psychiatry	5.5	9.6
pediatrics	5.9	24.0
pediatric allergy	0.1	0.3
pediatric cardiology	0.2	0.0
public health	1.5	5.9
physical rehabilitation	0.1	0.0
plastic surgery	0.6	0.3
pathology	3.4	4.9
pulmonary diseases	0.8	1.3
radiology	3.7	0.8
therapeutic radiology	0.4	0.3
thoracic surgery	0.5	0.0
urological surgery	2.6	0.0
other specialties	2.4	5.1
unspecified	1.5	4.5
	100.0	100.0
	(5988)	(375)

Figure 1: Percentage of Female and Male Physicians, by Primary Specialty 1973



GP	General Practice
IM	Internal Medicine
OBG	Obstetrics-Gynecology
PSY	Psychiatry, Child Psychiatry
PED	Pediatrics, Pediatric Allergy Pediatric Cardiology
SUR	Surgical Specialties
OTH	All Other Specialties
UN	Unspecified

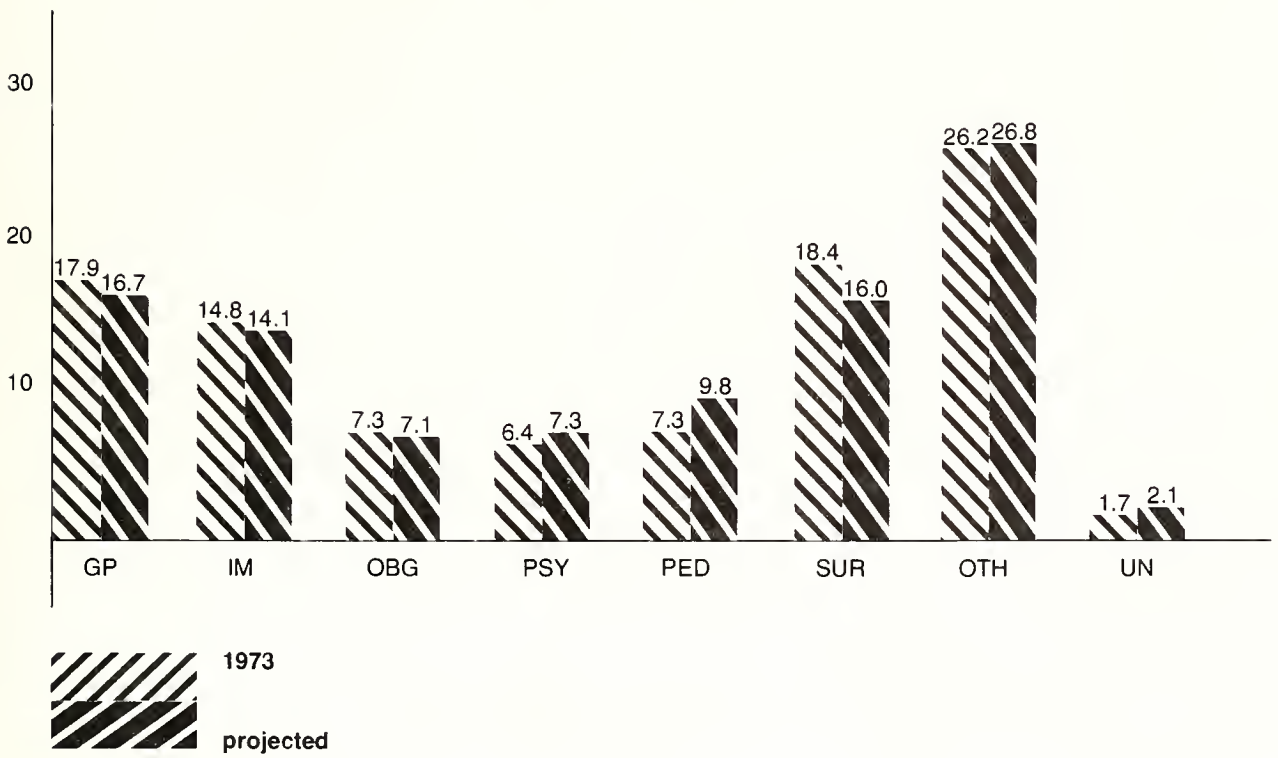
Women physicians are 5.89 percent of the total number of non-federal physicians in North Carolina. To illustrate the effect of the change in the proportion of female physicians, we have projected what the distribution of primary specialties would look like, if women were 20 percent of the physicians manpower force and men were 80 percent. A comparison of the distribution of primary specialties of all (male and female) North Carolina physicians with the projected distribution, weighted for the changes in the proportions in each group, presented in Figure 2, illustrates that the effect of the male/female ratio on the distribution of primary specialties may not be great.

The proportions of general practitioners, internists, obstetrician-gynecologists, and surgeons would slightly lower, while the proportions of psychiatrists and pediatricisns would be slightly higher. It does not seem, however, that increased number of women in medicine would in any important way alter the overall presence of specialists in the State.

Tables 5 and 6 suggest, however, that younger male and female physicians are not following in the primary specialty areas of their elders. As an indication of the specialties of younger physicians, we have noted that the specialty distribution of male and female physicians under 35 and compared these with the distributions of all male and all female physicians in 1973. (See Table 7.)

In many ways, the younger male and female groups are more similar to each other than the younger and total groups for each sex. While it is true that increasing proportions of younger women are becoming pediatricians and increasing proportions of younger men are becoming surgeons, younger men and women are less likely than older physicians to become general practitioners and obstetricians and more likely to specialize in internal

Figure 2: Percentage of all Physicians, 1973, by Primary Specialty and Projected percentage distribution of Physicians if Women Physicians were 20% and Male Physicians were 80% of the Physician Manpower Force.



1973

projected

GP	General Practice
IM	Internal Medicine
OBG	Obstetrics-Gynecology
PSY	Psychiatry, Child Psychiatry
PED	Pediatrics, Pediatric Allergy Pediatric Cardiology
SUR	Surgical Specialties
OTH	All Other Specialties
UN	Unspecified

Table 5: Age and Primary Specialty of Female Non-Federal Physicians in North Carolina, 1973, in percentages.

age	1	2	3	4	5	6	7	8	Total	N
under 30	4.7	18.8	3.1	10.9	31.3	0	14.1	17.2	100.0	(64)
30-34	6.3	12.5	2.1	16.7	22.9	2.1	33.3	4.2	100.0	(48)
35-44	8.9	5.1	2.5	16.5	35.4	1.3	30.4	0	100.0	(79)
45-54	12.0	8.0	5.3	12.0	22.7	6.7	29.3	4.0	100.0	(75)
55-64	11.6	5.8	14.5	8.7	15.9	1.4	40.6	1.4	100.0	(69)
65+	20.0	15.0	10.0	7.5	10.0	0	37.5	0	100.0	(40)
Total	10.1	10.1	6.1	12.3	24.4	2.1	30.4	4.5	100.0	(375)

1 general practice
2 internal medicine
3 obstetrics-gynecology
4 psychiatry, child psychiatry
5 pediatrics, pediatric allergy, pediatric cardiology
6 surgical specialties
7 all other specialties
8 unspecified

Table 6: Age and Primary Specialty of Male Non-Federal Physicians in North Carolina, 1973, in percentages.

age	1	2	3	4	5	6	7	8	Total	N
under 30	5.1	29.3	6.0	7.3	11.1	18.7	13.8	8.7	100.0	(686)
30-34	5.4	17.7	5.8	6.2	6.5	25.2	32.1	1.2	100.0	(779)
35-44	14.7	13.3	9.7	7.4	6.4	19.9	28.3	0.3	100.0	(1550)
45-54	24.6	13.5	7.5	6.3	6.6	18.2	22.8	0.4	100.0	(1414)
55-64	26.5	12.2	7.3	4.4	3.9	19.5	25.5	0.7	100.0	(839)
65+	31.5	9.2	5.4	3.2	2.9	15.0	32.1	0.7	100.0	(720)
Total	18.4	15.1	7.4	6.0	6.2	19.5	25.9	1.5	100.0	(5988)

1 general practice
2 internal medicine
3 obstetrics-gynecology
4 psychiatry, child psychiatry
5 pediatrics, pediatric allergy, pediatric cardiology
6 surgical specialties
7 all other specialties
8 unspecified

Table 7: Primary Specialties of Female and Male Physicians under 35 and All Female and Male Physicians, 1973

Specialties	Under 35		All	
	Female %	Male %	Female %	Male %
General Practice	5.3	5.3	10.1	18.4
Internal Medicine	16.1	23.1	10.1	15.1
Obstetrics-Gynecology	2.7	5.9	6.1	7.4
Psychiatry & Child Psychiatry	13.4	6.7	12.3	6.0
Pediatric Specialties	27.7	8.7	24.3	6.2
Surgical Specialties	0.9	22.1	2.1	19.2
All Others	22.3	23.5	30.4	25.9
Unspecified	11.6	4.7	4.5	1.5
Total	100.0	100.0	100.0	100.0
N	(112)	(1465)	(375)	(5988)

medicine. To illustrate the effects of both age and the proportional changes of male and female physicians, the distribution of primary specialties has been projected for two hypothetical situations in addition to the projected distribution discussed above:

1. if all physicians were like those under 35;
2. if all physicians were like those under 35, and if 20 percent of all physicians were women and 80 percent male.

Figure 3 leads us to conclude that the current trends in medical specialization may have a considerable effect on the future patterning of specialties, while the changes in the proportion of men and women in medicine may have a minimal effect.

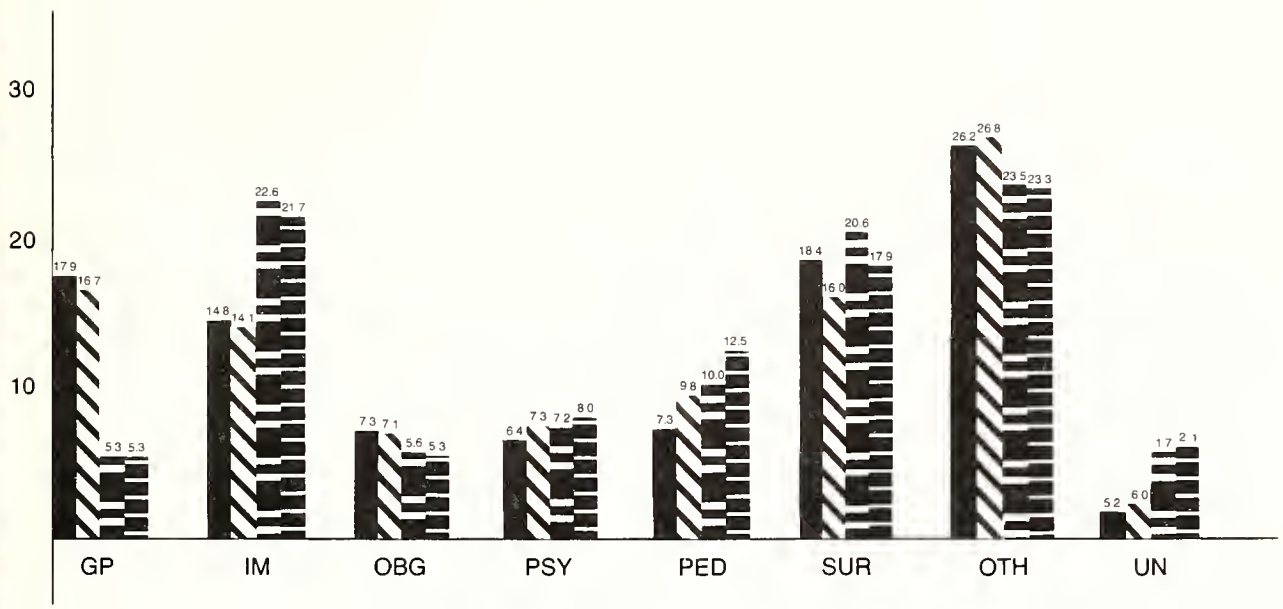
It should be emphasized that these projections are not exact predictions of the future distributions of primary specialties. They are only heuristic devices which give us a picture of what would happen if physicians continued to change in the direction of the current trends. It may be unlikely that the current trends of specialization will remain stable over the next 30 or 40 years. However, the comparisons and projections focus attention on the direction of current changes.

Setting of Medical Practice

The greatest differences in the setting of medical practice of men and women physicians is that men are more likely than women to have office-based practices, while women are more likely to have hospital-based practices, to be in "other" types of practices, or to be inactive. (See Table 8.)

To see the effect of the changes in the male/female physicians ratio, we have projected the distribution of medical practice settings physicians would have if 20 percent of the physicians were women and 80 percent were men. Because residents and interns have not yet established practices,

Figure 3: Distribution of Physicians 1973 and Projected Distributions, by Primary Specialty



1973 distribution
projected distribution, if 20% women, 80% men
projected distribution, if all physicians were like those under 35
projected distribution, if women were 20%, men 80% and all physicians were like those under 35

GP	General Practice
IM	Internal Medicine
OBG	Obstetrics-Gynecology
PSY	Psychiatry, Child Psychiatry
PED	Pediatrics, Pediatric Allergy Pediatric Cardiology
SUR	Surgical Specialties
OTH	All Other Specialties
UN	Unspecified

Table 8: Setting of Medical Practice of Non-Federal Physicians in North Carolina, 1973, By Sex, In Percentages.

Setting of Practice	Female	Male
Office-based	44.5	62.0
Hospital-based	8.0	3.8
Resident	12.6	13.9
Intern	3.6	4.5
Research	2.9	2.8
Medical Teaching	2.9	1.8
Administration	5.9	3.4
Other	1.3	0.6
Inactive	12.0	5.7
Not classified	4.0	3.8
Total	100.0	100.0
	(5988)	(375)

they are omitted from these figures. (See Figure 4.) As with the distribution of primary specialties, the effect of the changes in the sex ratio in the profession of medicine would have a minimal effect on the distribution of the settings of medical practice.

The setting of medical practice is likely to be less stable over an entire career than a primary specialty. Therefore, we cannot assume that the settings of medical practices of the younger physicians necessarily reflect current or future trends in medicine. They may only indicate the type of practices younger physicians have. As physicians age, changes may be made, so that their practices resemble more closely those of older physicians.

Tables 9 and 10 indicate that both younger men and younger women are less likely to have office-based practices than the older physicians. Younger women are more likely than younger men to have hospital-based practices and less likely to have "other" practices. Younger male physicians are slightly more likely than younger female physicians to have hospital-based practices and less likely to be inactive. However, the proportion of women who are inactive is fairly substantial for all age categories. This may be due to family responsibilities coupled with lack of part time job possibilities. Both younger groups have large proportions of physicians who are "not classified".

Summary

The important finding in this research is that changes in the proportions of women and men in medicine may not alter substantially the distribution of primary specialties and the settings of medical practice in the State of North Carolina. Important changes in the profile of one state's physician population seem to be the result of trends among younger physicians -- both male and female.

Figure 4: Setting of Medical Practice of all Physicians, 1973, and Projected Distribution if 20% were women and 80% men, omitting interns and residents

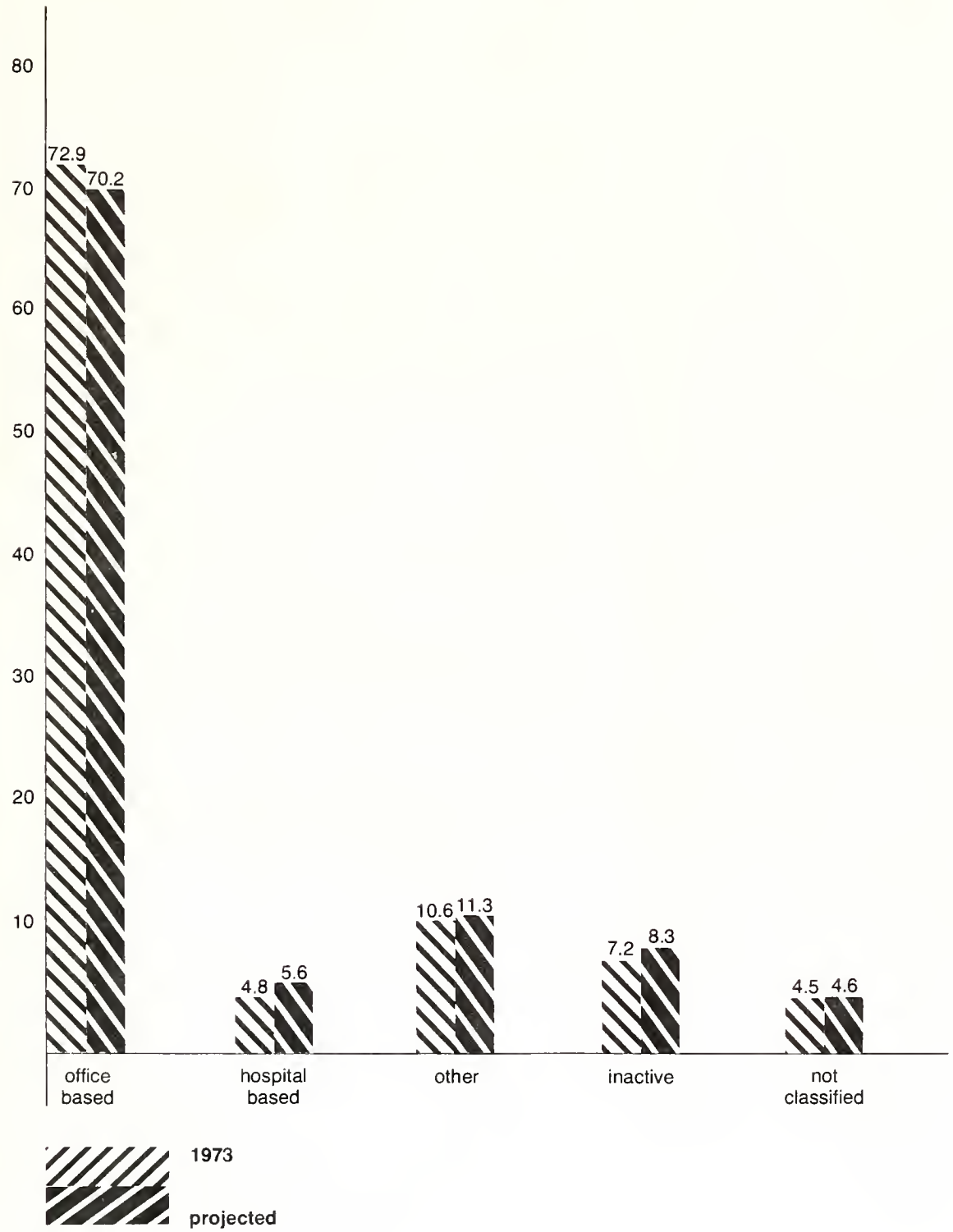


Table 9: Age and Setting of Medical Practice of Female Non-Federal Physicians in North Carolina, 1973, In Percentages.

	Setting of Practice							
Age	Office-based	Hospital-based	Intern & Resident	Other	Inactive	Not Classified	Total	N
Younger than 30	4.7	3.1	75.0	1.6	6.3	9.4	100.0	(64)
30 - 34	39.6	12.5	22.9	6.3	6.3	12.5	100.0	(48)
35 - 44	57.0	8.9	10.1	16.5	6.3	1.3	100.0	(79)
45 - 54	57.3	10.7	2.7	18.7	8.0	2.7	100.0	(75)
55 - 64	55.1	5.8	0.0	21.7	17.4	0.0	100.0	(69)
65+	47.5	7.5	0.0	7.5	37.5	0.0	100.0	(40)
Total	44.5	8.0	18.4	13.1	12.0	4.0	100.0	(375)

Table 10: Age and Setting of Medical Practice of Male Non-Federal Physicians in North Carolina, 1973, In Percentages.

Age	Settings of Practice: Office-based	Hospital-based	Intern & Resident	Other	Inactive	Not Classified	Total	N
Younger than 30	3.4	0.7	86.0	0.6	0.1	9.2	100.0	(686)
30 - 34	30.3	4.5	43.9	6.9	0.1	14.2	100.0	(779)
35 - 44	78.8	4.3	2.1	11.9	0.3	2.6	100.0	(1550)
45 - 54	83.2	4.3	0.4	10.7	1.0	0.4	100.0	(1414)
55 - 64	80.7	4.4	0	8.6	6.0	0.4	100.0	(839)
65+	52.6	3.1	0.0	6.4	37.5	0.4	100.0	(720)
Total	62.0	3.8	16.2	8.6	5.7	3.8	100.0	(5988)

Footnotes

[1]Statistical Abstract of the United States, 1970, U. S. Department of Commerce, Bureau of the Census, Washington, D. C.: U. S. Government Printing Office, p. 65.

[2]Resources for Medical Research Report, No. 13, June 1968, Special Report on Women and Graduate Study, U. S. Department of Health, Education and Welfare, National Institutes of Health, p. 7.

[3]Dube, W. F. "Women Students in U. S. Medical Schools: Past and Present Trends." Journal of Medical Education, 48 (February 1973): 186-189.

[4]The setting of medical practice is called by the American Medical Association, the type of medical practice. Examples of settings of medical practice are: office-based practice; hospital-based practice, medical teaching.

[5]Data is from the American Medical Association.

[6]This is what is happening at the University of North Carolina School of Medicine.

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